

JUGOSLAVIAEconomic / MilitaryPrincipal Factories under Ministry of Industry:**CONTROL  
EYES ONLY**Progress of Five Year Plan for Industry:Civilian Factories Scheduled for Conversion to War Production

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The report does not list all

the factories under the direct control of the Ministry of Industry, but the most important ones are described in some detail. In one or two instances no details are available of factories listed as under the Ministry's control.

2. Sketches of factories marked with an \* in the body of the report are attached as appendices.

3. The following are the subjects dealt with :-

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PRINCIPAL FACTORIES UNDER JUGOSLAV MINISTRY OF INDUSTRY:

PROGRESS OF FIVE YEAR PLAN FOR INDUSTRY:

CIVILIAN FACTORIES SCHEDULED FOR CONVERSION TO WAR PRODUCTION:

Ministry of Industry (Civilian), BELGRADE

1. The Yugoslav Ministry of Industry in BELGRADE is sub-divided into two main departments, one for Heavy and one for Light Industry. It does not administer arms and munitions factories, nor shipyards of national importance, which come under the Ministry of Defence.

2. The Director of Planning for the Light Industry is Ing. Branko PRICA.

3. A number of Directorate Generals for various branches of Industry depend from the Ministry in BELGRADE. In addition each Federal Republic has its own Ministry of Industry, from which depend a number of Principal Directorates having jurisdiction over the factories of Regional importance only.

4. The following is a list of known Directorate Generals of Industry, together with known factories under their control:-

a) Directorate General of Metallurgical Industries

i) Personalities

Director General	Perko VENCEL
Chief Engineer	VLAIC
Director of Planning	Ing. Branko STEFANOVIĆ
Chief of Projects Office	Ing. Rudolf HANZEKOVIĆ
Administrative Director	BAKIC

ii) Factories Under Control

"IVO LOLA RIBARA" Engineering Works, ZELEZNIK (in partial production)  
 "LITOSTROJ" Pump and Turbine Factory, LJUBLJANA (in partial production)  
 "KOMBINAT" Engineering Works, SARAJEVO (under construction)  
 Locomotive and Bridging Factory, SLAVONSKI BROD  
 Iron Engineering Works, MARIBOR - TEZNO  
 "VERIG" Iron Engineering Works, LESCE  
 "PARNIK KOTLOVA" Boiler Factory, ZAGREB / ZITNJAK (in partial production)  
 "14th October" Engineering Works, KRUSEVAC  
 Engineering Works, TUZLA (after expansion)  
 Iron Works (Locomotives), MARIBOR  
 "JASENICE" Rolling Stock Factory, SMEDEREVSKA PALANKA  
 Rolling Stock Factory, KRALJEVO  
 "JUGO ALAT" Machine Tools Factory, NOVI SAD (under construction)  
 "1st of May" Machine Tools Factory, ZAGREB / ZITNJAK (under construction)  
 Tractor Factory, SMEDEREVO (Under construction)

b) Directorate General of Metal Ores

Iron and steel Works, ZENICA  
 Iron and Steel Works, JESENICE  
 Iron and Steel Works, STORE  
 Iron and Steel Works, GUSTANJ (SLOVENIA), for special materials  
 Aluminium Factory, STRNISCE (under construction)

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- c) Directorate General of Motor Industry  
 Engine Factory, RAKOVICA  
 Motor Factory, TEZNO - MARIBOR  
 Ball Bearings Factory, BELGRADE (under construction)
- d) Directorate General of Agricultural Machinery Industry  
 Agricultural Implements Factory, SLEDERVO (in planning stage)  
 Agricultural Implements Factory, VISEGRAD  
 "VOJVODINSKA LIVNICA", NOVI SAD  
 "JEDINSTVO", NOVI SAD  
 "OLT", OSLJEK  
 "JESEK" Factory, MARIBOR
- e) Directorate General of Electrical Equipment Industry  
 "RADE KONCAR" Electrical Engineering Works, ZAGREB  
 Cable Factory, ZAGREB
- f) Directorate General of Chemical Industry  
 "WESTERN" Chemical and Engineering Factory, CELJE  
 "RUSA" Carbide and welding Gas Factory, near MARIBOR  
 Glass Factory, PANCEVO
- g) Directorate General of Textile Industry  
 "HUTTER" Textile Factory, MARIBOR
- h) Directorate General of Tobacco Industry
- i) Directorate General of Cement Industry
- j) Directorate General of Mining Industry  
 Bauxite Mines of BOSNIA  
 Mines at BOR  
 Coal Mines at RASA
- k) Directorate General of Leather and Rubber Industry  
 "BATA" Footwear Factory, BOROVO  
 Rubber Goods Factory, KRANJ
- l) Directorate General of Electrical Industry  
 This controls all the electric power stations.

#### Organisation and Progress of Five Year Plan for Civilian Industry

5. To assist the Minister of Industry, Boris KIDRIC, to work out programmes for the Five Year Plan, beginning in 1946, for the branches of industry under his control the following six Yugoslav engineers were called in :-

Dr. HERCEGONI	(motor and engine industry)
Branko STEFANOVIC	(industry in general)
VUCO	(agricultural machinery)
Branko PRICA	(agricultural machinery)
LAZAREVIC	(industry in general)
Rudolf HANZEKOVIC	(maintenance machinery)

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6. The principles for the Five Year Plan for Industry laid down by KIDRIC were as follows :-

- a) New factories were to be built and existing ones modernised so that at the end of the second Five Year Plan (1956) JUGOSLAVIA would be completely independent in her industrial requirements.
- b) Certain factories were to be constructed in such a way that they could be converted to war production within a maximum of six months.
- c) New factories were to be built in areas offering good possibilities for defence, i.e. near hills and mountains, irrespective of disadvantages which might result.
- d) Buildings were to be constructed at least 200 metres apart, and facing different directions; the whole to give the appearance of being other than a factory (hospital, museum, housing estate, etc.). This directive was imposed on KIDRIC against his will by the Ministry of Defence.

7. The engineers responsible for drawing up plans for each branch of industry were given very little time in which to prepare them, with the result that each plan submitted for approval to the Council of Ministers was lacking in detail and co-ordination with the others. The plans were approved, and became law, without being examined by a competent body of experts. Only after they had become law were the details worked out and financial estimates submitted.

8. It was then found that the amount required for putting the various plans into effect exceeded by far the financial resources of the country. The plan prepared by Ing. HANZEKOVIC required 8 $\frac{1}{2}$  milliard dinars, and the others required between 6 and 8 milliard dinars each. Accordingly the planners were instructed, not to reduce the number of factories scheduled for construction or modernising, but to restrict the number of departments and the amount of machinery. For instance, the "IVO LOLA RIBARA" Engineering Works at ZELEZNIK, according to the original project, should have been double the size of what is now intended.

9. Despite the revisions made in the original plans, the Ministry of Finance still found great difficulty in providing the necessary funds, and was obliged to impose increasingly heavy taxes on the population, which caused considerable discontent. This discontent was heightened because the Government was forced to reduce the standard of living by selling foodstuffs abroad in exchange for the machinery required for the Plan, and for that of the War Industries.

10. Construction of new factories and extension of existing ones in the first year of the Five Year Plan (1946-7) fell behind schedule, largely because of the high proportion of building materials (cement, bricks, iron) which went to the U.S.S.R.

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The Yugoslav Government, realising that failure of the Plan in the initial stages would discredit it, perhaps irretrievably, with the country, refused to continue with these exports, and in the second year (1947-8) tried to make up for lost time. But although sufficient building materials were thus made available, there was still a shortage of labour, and construction was again behind schedule.

11. Moreover, there was also labour shortage, both skilled and unskilled, on the production side, despite the fact that manpower in most of the major Yugoslav factories is double that of before the war. In an attempt to provide a remedy, and to reduce costs, the Yugoslav Government brought in the system of compulsory overtime without compensation. It is possible that if this system can be enforced, through the rigid control of the industrial workers, the Five Year Plan for civilian industry may achieve the goal for the end of 1949, both in construction and production, though only at the cost of further antagonising the peasants and clerical workers, whose standard of living must continue at a reduced level. Whether the Plan can be fully realised by the end of 1951 will depend not only on labour but on the ability of the Government to purchase abroad the necessary machinery.

12. Yugoslav industry is on the whole well equipped in non-precision machinery, such as lathes, presses, and boring machines, but there is still a severe shortage of the precision machinery required for the factories to be modernised or constructed under the Plan. There is also a severe shortage of electrical equipment and ball bearings.

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13. JUGOSLAVIA has received 14,000 machines under reparations from GERMANY, but of these 12,000 have gone to the War Industries, which are given absolute priority in this as in other fields.

Machinery from Eastern EUROPE

14. The Yugoslav Government expected to obtain its entire requirements in machinery and equipment for the Five Year Plan, in addition to machinery obtained under reparations, from various factories in CZECHOSLOVAKIA. Even before the open split between TITO and the COMINFORM, however, these expectations were far from being realised, since delivery of Czechoslovakian machinery to JUGOSLAVIA was con-

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sistently obstructed by the SOVIET UNION, which since the end of the war has secured increasing hold over the Czechoslovakian heavy industry. Since the split, commercial exchanges between JUGOSLAVIA and CZECHOSLOVAKIA have grown even more restricted.

15. The only existing contract which appears likely to be fulfilled is that for machinery for the machine tool factory "JUGO ALAT" under construction at NOVI SAD, which concerns SKODA and the "FERRUM(?) VOLMAN(?)" "Freedom" and "FOLLMANN" Factories of PRAGUE (for details see paragraph 41(d)). Machinery from "ZBROJOVKA" of BRNO has been ordered for the same factory through "SVE-EXPORT" of STOCKHOLM, which will sell the machinery as if of Swedish manufacture at 2 to 3% above cost price (for details see paragraph 41(d)). In addition, CZECHOSLOVAKIA is continuing to supply coke for the Iron and Steel works at ZENICA, to the amount of 350 tons a day.

16. Attempts to acquire machinery and equipment from other Satellite countries have also come to little. At the end of 1947 or the beginning of 1948 the Yugoslav Government endeavoured to secure a commercial agreement with POLAND, whereby JUGOSLAVIA would receive machinery for the construction of railway material (and springs and other parts for rolling stock), but the attempt failed. HUNGARY is the only Satellite country apart from CZECHOSLOVAKIA which has agreed to supply machinery to JUGOSLAVIA, and indeed those two countries alone among the Satellites are believed to have maintained any kind of commercial relations with JUGOSLAVIA since the TITO-COMINFORM split. On the basis of an agreement concluded before the split, HUNGARY will supply electric furnaces, from MANFRED WEISS, for the "IVO LOLA RIBARA" Engineering Works at ZELESNIK and the "KOMBINAT" Engineering Works under construction at SARAJEVO, as well as machinery for the agricultural implements factory projected at SMEDEREVO, and probably other electrical equipment. JUGOSLAVIA will supply in exchange 600 million dinars' worth of timber.

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#### Machinery from Western EUROPE

17 Balked of success in obtaining machinery and equipment from the Satellite countries, JUGOSLAVIA has been forced to turn to the west

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**SECRET****CONTROL  
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20. The Five Year Plan provides for a considerable expansion of the cities of BELGRADE and ZAGREB. BELGRADE is to be extended as far as the station and airfield of ZEMUN, which will be closed down, and traffic diverted to the new airfield of BATAJNICA, West of ZEMUN. The extension of the city will be a costly undertaking, since it is built on sandy soil. At the present 2,000 young volunteers are engaged on levelling the ground in preparation for building, and a start has been made on the Government Building on the left bank of the SAVA, opposite ZEMUN Railway Station.

Factories Scheduled for Conversion to War Industries.21. "IVO LOLA RIBARA" Engineering Works ZELEZNIK.a) Title.

This factory, named after a dead partisan, is the only factory in YUGOSLAVIA which is referred to officially in the Ministry of Industry by a symbol and not by name. It is known as "13 A and 13 B", after its two departments of that denomination.

b) Location and Communications.

The factory is located 2 kilometres Southwest of ZELEZNIK, between

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two hills. A branch line connects it with the narrow guage line ZELEZNIK - BELGRADE. This line will be expanded to normal guage to facilitate communications from and to the factory.

c) Divisions.

In addition to the departments 13 A and 13 B the factory consists of a research department for the construction of prototypes, a technical directorate, an electric transformer, a store of materials, and an industrial training school. The training school is on the lines of these which have been set up in all major YUGOSLAV works. It has 120 pupils who are on a three year course.

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d) Personalities.

Political Director  
Technical Manager  
Manager of Plan of Production

BUDA [REDACTED]  
Ing. NESIC, [REDACTED]  
Ing. OBERSCHMIDT [REDACTED]  
[REDACTED]

e) Department 13 A

i) Introductory.

The construction and the installation of the machinery of this department was begun on 1st June 1947. It was officially opened in the presence of TITO on 1st January 1948, and begun production. Its dimensions are 134 x 90metres.

ii) Production

The nature of the products depends on the requirements of YUGOSLAV industry as a whole. Planned capacity is 15,000 tons of finished products a year. In 1948, through shortage of raw materials and skilled labour, production reached only some 12,000 tons. The following items, among others, have been produced so far:-

- 25 drop hammers, of 300 kgs. weight.
- 6 machines for paper pulping
- Various cog wheels, maximum diameter 5 metres
- Special "CENTERLEX" Machines (see sub-paragraph 21 (e) vi) below)

iii) Intended War Production

Ing. HANZEKOVIC, who drew up the plans for this factory, allowed for the conversion of department 13 A to tank production within three months if required. At the end of that time it is estimated that the department 13 A would

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be manufacturing the heavy parts required for the production of three 50-ton tanks a day and that, with suitable rationalisation of machinery and manpower, this figure could be raised to five a day. The department 13 B would manufacture the accessories. Engines for the tanks would be manufactured in the engine factory at RAKOVICA.

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iv) Manpower and Shifts

Between 1,300 and 1,400 workers are employed in the department 13 A, working in two eight hour shifts. A modicum of work is done in a third shift. If working to utmost capacity the department could employ 2,700 workers.

v) Machinery and Installations

120 heavy pieces of machinery, 15 of them capable of working pieces up to 50 tons in weight  
Cranes up to 150 tons capacity.  
Foundry for iron castings, with two coke-fired blast furnaces.  
Each furnace can make five to six castings a day, of a maximum weight of 2½ tons.

All the machinery, and the furnaces, come from the "SCHIESS" Works at DUESSELDORF by way of reparations. Each machine runs independently with its own electric motor.

Two electric foundries for HEROLD steel, and a smaller foundry for other metals, will also be constructed. The furnaces have been ordered from MANFRED WEISS of BUDAPEST. The steel foundries will have a capacity of three or four castings a day of up to 3 tons in weight, the other foundry will cast only up to 250-300 kgs.

vi) Special "CENTERLEX" Machines

A German engineer employed in the factory has invented a special type of "CENTERLEX" machine which differs from the normal type in that it can face rounded pieces into square both on the approach and return of the carriage, whereas in normal types this is done only on the approach.

Three prototypes have been constructed for the research department, of varying sizes: one for working on pieces of 1 mm to 20 mm diameters, one for pieces of 20 mm to 50 mm diameters, and one for pieces of 50 mm to 100 mm diameters. Production of these machines has been started in the department, and when completed they will be put on the foreign market. Serial production will eventually be undertaken in the "1st of May" Factory at ZAGREB / ZITNJAK.

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The German engineer was given a bonus for the invention of 20 months salary by the Ministry of Industry.

vii) Further Invention by German Engineer.

The same engineer has invented a device for preventing cinders from entering into incandescent pieces. As the Ministry of Industry has refused him a bonus for the invention he has so far refused to construct a prototype for the research department, but negotiations are in course.

f) Department 13 B

i) Introductory

The construction of this department was scheduled to begin on 1st January 1949. Its dimensions will be 126 x 80 metres. According to the Five Year Plan, the department should begin production by the end of 1949, but it is unlikely that this will be so because of shortage of manpower.

ii) Intended Production

This department is scheduled to manufacture machinery up to 10 tons in weight. Total annual production is planned at 13,000 tons. The following machines will be constructed:-

"KARUSEL STRUG" type machines for cutting sheets  
 "SHALINC" type machines for boring  
 "SPINDEL" type boring machines, with capacity up to 80 mm  
 "STOSS" German type machines with a knife play of 18 cm.  
 Vertical milling machines copied from the German "BIRNASKI"  
 Model 500  
 Machines for working cog wheels of up to 2 m diameter.

iii) Intended War Production

If the factory is converted to war production, the department 13 B will manufacture accessories for tanks (see sub-paragraph 21 (e) iii above)

iv) Intended Manpower and Shifts.

Manpower is envisaged at 2,800 to 3,000 workmen, working in three shifts.

v) Intended Source of Machinery.

Machinery for department 13 B has been earmarked from reparation

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material from GERMANY.

g) Workers' Estate.

A housing estate is being built near the factory buildings capable of holding 20,000 to 30,000 people, including workers' families, and consisting of 250 blocks. These figures are based on the planned total of manpower for the factory when working to full capacity with both department 13 A and 13B, i.e. some 5,5000.

h) Sources of half-finished Products.

The necessary half-finished materials for the department 13 A come from the Iron and Steel Works at JESENICE, ZENICA and STORE.

22. "LITOSTROJ" Pump and Turbine Factory, LJUBLJANA. +

a) Introductory

Construction on this factory was begun in 1947. It will eventually consist of two groups of buildings; the first group is scheduled for completion some time in 1951, the second forms part of the second Five Year Plan. The buildings in the first group which have been constructed already are very well planned from the architectural point of view, since they were designed by professional architects, but technically they are not so well designed.

b) Communications

A branch line connects the factory with the railway line LJUBLJANA - S.VID

c) Production

Production has already begun in the buildings already constructed, on centrifugal pumps for mines and turbine sets for electric power stations. Five complete turbine sets a year are envisaged, though no ceiling for production has been set in the plan. The turbines now under construction are for the power stations at MARIBOR Island, DRAVOGRAD and one other, unspecified, on the River DRAVA; they will be each of 50,000 h.p. Up to the end of 1948 no piece of equipment of any kind had left the factory.

Under the Five Year Plan a department is to be constructed near S.VID for research into motor-driven machinery, but the location has not yet been selected.

d) Intended War Production

It has not yet been decided what the factory will produce if it is switched on to war production, but it will probably be tanks.

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a) Manpower

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Approximately 2,500 workmen are employed in the buildings so far constructed. When the first group of buildings has been completed it will be capable of employing 5,000. [REDACTED]

[REDACTED] A housing estate for the workers is under construction about 1 kilometre from the factory, on the road LJUBLJANA - S. VID; it will consist of seven or eight large blocks.

f) Machinery and Installations

The foundry is already working, with two coke-fired blast furnaces capable of casting up to 20 tons a day. Electric generators of 100,000 volts are on order [REDACTED]

g) Source of Power

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From a power station, unspecified, on the River SAVA.

h) Sources of Raw Materials

The iron and steel works of JESENICE, ZENICA and STORE.

i) Personalities

Political Director  
Technical Manager

Franc PECAR  
Ing. ZORICIC [REDACTED]

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23. Engine Factory, RAKOVICA.a) Production

For the last six months the factory has been manufacturing engines for tractors, at the rate of 12 - 15 a day. This is in contrast with planned production, which is 120 a day. The engines are 4 cylinder petrol engines, 45 h.p. Previously the factory manufactured engines for the lorries manufactured at the motor factory at TEZNO - MARIBOR. It may still do so for the vehicles manufactured at the "JASENICE" Rolling Stock Factory at SMEDERESKA PALANKA.

In addition the factory carries out oil tempering for pieces despatched from the TEZNO - MARIBOR motor factory, and manufactures gear sets for the same factory.

No aero-engines are being produced, though it is possible that repairs are carried out to aero-engines.

b) Intended War Production.

Tank engines. Maximum production would be 12 - 15 a day.

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c) Manpower and Shifts.

Approximately 3,000 workers are employed, working in two shifts, but the factory is capable of employing 9,000. Shortage of manpower is responsible for failure to reach planned production.

d) Installations.

The factory has no foundry of its own, and the necessary materials come from the iron and steel works at JESENICE, ZENICA and STORE.

e) Personalities

The Political Director is ANDREJEVIC, previously employed in the same capacity at the "ZMAJ" factory at ZEMUN. He was promoted to the RAKOVICA appointment for good service.

24. "RADE KONGAR" Electrical Engineering Works, ZAGREB.

a) Production

Production was begun partially in 1946, and by the middle of 1947 had reached the maximum consistent with shortage of raw materials, particularly ball bearings, and manpower. The following items are manufactured, among others:-

Electric motors, 10 KW	1,000 a year maximum
Electric transformers for power stations, 100,000 volts,	100 a year Maximum
Civilian telephones	
Military field telephones.	

The transformers at present under construction are intended for the electric power stations being built on the River DRAVA.

The factory works in close collaboration with the "1st of May" Factory at ZAGREB, and manufactures electric motors for machinery produced by this plant.

Under the Five Year Plan it is intended that the factory should produce every type of electrical equipment manufactured by SIEMENS and raise itself to the pre-war level of that concern.

b) Intended War Production

All forms of electrical apparatus required by the Armed Forces.

c) Manpower and Shifts

Approximately 3,000 workers are employed, working in one shift, but the factory is capable of employing some 9,000.

d) Machinery and Installations

Machinery is new and efficient. A foundry will eventually be constructed, but it has not yet reached the designing stage.

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c) Sources of Raw Materials

The majority comes from the foundry "VOJVODINA" of NOVI SAD.

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[redacted] Electric cables are supplied by  
an unspecified factory in ZAGREB.

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f) Personalities

The political director is Boris PETROV.

25. "KOMBINAT" Engineering Works, SARAJEVO +a) Introductory

The factory is being built 5 kms South of SARAJEVO, underneath the mountain in that area, and on the early course of the River BOSNA. The buildings, but not the installation of the machinery, were due for completion at the end of 1948, but it is not known whether this has been achieved. Plans for the factory were drawn up by three German technicians, [redacted]

RIBENSAN (spelling?), who designed the foundry, RAUNER, who designed the layout of the machinery, and HLIASCH (spelling?), who designed the buildings.

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b) Intended Production

The factory will produce machinery and spare parts for the "BATL" Footwear Factory at BOROVO, machines for wood-working and small precision machines, unspecified. Estimated annual production is 6,000 tons of finished products.

c) Intended War Production

If switched on to war production the factory will produce precision-sighted small arms, rangefinders, telescopes and measuring instruments for artillery.

d) Manpower

The manpower envisaged is not known, but some indication of the numbers can be found in the size of the workers' estate being built near the site of the factory, which will consist of 70-80 two or three storey blocks. Four of these have been completed.

e) Machinery and Installations

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[redacted]  
[redacted] The firm of "MANFRED WEISS" in BUDAPEST is supplying the machinery for an up-to-date electric foundry for small castings of special metals; each electric furnace will cost 30 to 40 million dinars. A coke-fired furnace is also under construction, which will be capable of casting 12,000 tons a year. The 6,000 tons of castings in excess of local needs will be delivered to other Yugoslav factories.

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f) Personalities

The political director will be LUZNER.

26. Locomotive and Bridging Factory, SLavonski BRODa) Production

20 - 25 dolly locomotives a year  
 Iron bridges, production capacity 25,000 tons a year, which it is intended should be raised to 40,000 tons by the end of 1951.  
 Petrol storage tanks  
 Industrial boilers  
 Repairs to railway engines, damaged in the war.

No railway engines are constructed by the factory, nor by any other factory in JUGOSLAVIA. Until recently the factory was manufacturing dolly trucks for industrial use, but the manpower employed on this activity has now been switched on to bridge building.

b) Intended War Production

Tanks. No modification in existing machinery will be necessary.

c) Manpower

Approximately 6,000 workers are employed, working in three shifts.

d) Machinery and Installations

Machinery and installations have been modernised, and are 100% efficient.

A new bay was recently constructed for assembly.

e) Sources of Raw Materials

The iron and steel works at JESENICE, ZENICA and STORE.

f) Personalities

The previous managing director of the factory was Ing. VILIC, now Chief Engineer adviser to the Ministry of Industry.

27. Iron Engineering Works, TEZNO - MARIBOR +a) Title and Location

The works are known as SPLOSN. FABRIKA ŽELJEZNIKE KONSTRUKCIJE. They are located opposite TEZNO railway station.

b) Production

In 1948 the works manufactured approximately 10,000 tons of finished products. A new building has been built, to enable production to be raised to 24,000 tons a year. In 1949 the construction of a further building, for bridge and crane construction, will enable production to rise to 40,000 tons a year.

The factory manufactures the following items:-

Iron bridges - two were built for the S.M.L.C - S.RAJEVO railway.  
 Cranes of all sizes - in 1948 two large cranes were sent to the "LITOSTROJ" factory at LJUBLJANA, and one to the "IVO LOL. RIBAR." Factory at ŽELEZNIK.



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Petrol storage tanks - in 1948 six tanks of 100 cubic metres capacity were sent to TITOGRIAD, of which one was for military use.  
Nuts and bolts - the department where these are manufactured is due for demolition, and the machinery will be transferred to the "VERIG" iron engineering works at LESCE. On the site of the demolished department will be built the second new bay mentioned above.

In the course of 1949 the factory will also undertake the manufacture of winches.

c) Intended War Production

Parts for tanks.

d) M manpower and Shifts

Approximately 2,400 workers are employed, working in two shifts. This number could be raised to 3,000, when a third shift would be worked.

28. Machine Oil Refinery, TEZNO - MARIBOR

a) Location

The refinery is located in front of the railway station of TEZNO, and is well camouflaged with trees.

b) Production

The works are now engaged exclusively in the regeneration of oil for industrial machinery and the production of lubricants for the same purpose. Some 40 tons of oil is regenerated weekly; the production of lubricants varies according to the quantity of residue from the regenerating process. Until the end of 1946 the works were engaged on refining crude oil from the LENDEVA wells, with a production of 15-20 tons of refined petrol a day, and on the production of oils, at a rate of 5,000 kilograms a day.

c) Intended War Production

Oils and lubricants for military purposes.

d) Installations

The factory has six underground storage tanks, four large and two small, with a total capacity of 1,000,000 litres.

e) M manpower

The factory employs 30 workers.

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**U.S. OFFICIALS ONLY**Principal Plants of National Importance Complementary to the War Industry29. Iron and Steel Works, ZENICA ( ZELAZARNA ZENICA ) +(a) Production

Annual production of iron and steel profiles varies between 1,200,000 and 1,500,000 tons, which is double that of before the war. The planners estimate that with the construction of a third coke-fired blast furnace in 1949, and a fourth in 1951, production will reach 3,000,000 tons a year. There will, however, be considerable difficulties to be overcome in manpower and raw materials. The <sup>(sic-possibly BOR COPPER MINE)</sup> BORO mines, which supply ore to the iron and steel works at ZENICA and JESENICE, are in urgent need of modernisation, since the machinery of extraction is barely able to provide even for the present rate of production, and at times activities are slowed up in the two works because raw materials fail to arrive. Moreover it is by no means certain that CZECHOSLOVAKIA will continue to supply coke for the blast furnaces at ZENICA, or that in any case transport facilities will prove adequate for the amount of coke required (350 tons a day at present). The Ministry of Industry has instituted researches into coke production from the national coal resources.

(b) Manpower

The Works employ approximately 15,000 workers, working in three shifts. Some 2,000 to 3,000 are employed on the modernisation of the machinery.

(c) Machinery and Installations

The Works have some 1,000 machines of various types, many of them already fairly modern. New machinery required for the projected expansion of the Works will be supplied by the "IVO LOLA RIBARA" Factory at ZELEZNIK. The two existing blast furnaces are coke-fired, as will be the other two which are planned for 1949 and 1951 respectively.

(d) Sources of Raw Materials

The BORO <sup>(sic)</sup> Mines (see sub-paragraph (a) above) for iron ore, and CZECHOSLOVAKIA for coke for the blast furnaces (see same sub-paragraph). The coke is loaded onto barges at BRATISLAVA and brought down the DANUBE to BELGRADE, where it is loaded on to railway waggons.

(e) Source of Power.

Power Station near DUBROVNIK.

(f) Transport Facilities

Material is taken from the Works by rail. Facilities are on the whole

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adequate, despite one or two deficiencies.

30. Iron and Steel Works, JESENICE (ZELEZARNA JESENICE)

a) Production

Approximately 1,000,000 tons of finished products (iron and steel profiles) are produced annually, which is higher than pre-war production. Production will increase in 1949 with the construction of a second blast furnace, though finished products will not increase in proportion, as existing machinery is inadequate. In 1951 it is intended that additional machinery will be provided by the "IVO LOLA RIBARA" factory at ZELEZNIK. The quality of the products, though superior to those produced at ZENICA and STORE, is still below that of many foreign products. The planners expect it to have improved by 1951.

b) Manpower

Approximately 12,000 workmen and 400 technicians are employed in the works, which is approximately double the pre-war figure. Requirements in skilled labour are not high. The blast furnace department employs some 1,500, the MARTIN furnace some 2,000.

c) Machinery

The factory has some 90 machines, mostly of heavy types, including pneumatic and hydraulic drop hammers, four large rolling mills with a total of some 90 cranes, and steel cutters which cut 80 metres of steel to the minute. It is hoped by the management to perfect research into a shearing machine capable of cutting 200 metres of steel, of the maximum thickness required, in one minute. All the machinery can be used on the "VIDIA" process, though "VIDIA" plates are in short supply. Some of the machinery came from the KRUPP'S Works at ESSEN, and was repaired at the "IVO LOLA RIBARA" Factory at ZELEZNIK.

d) Installations

The one existing blast furnace is divided into several sections. There is a "MARTIN" coke-fired furnace for transforming iron into special steel, and three electric furnaces for working ingots with a capacity of three castings of three tons each daily.

e) Sources of Raw Materials

Ore is supplied from the mines at BORO (sic). Scrap iron is also used for casting.

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f) Source of Power

One of the four power stations on the River DRAVA.

31. Iron and Steel Works, STORE +a) Location

Because of their location between two big hills, some 300 metres from STORE railway station, the Works cannot be expanded.

b) Production

Annual production is approximately 100,000 tons of iron and common steel profiles. None of the products is used by the war industries at present.

c) Manpower

The Works employ some 9,500 workers, working in three shifts.

d) Machinery and Installations

There are some 300 machines of various types. There is no blast furnace; the scrap iron, which is the sole source of raw material, is treated in special furnaces, and there is a BESSEMER furnace for steel production. All the furnaces are coke-fired.

e) Source of Power

The power station at FALA on the River DRAVA.

32. Aluminium Factory at STRNISCEa) Description

The factory is located in a wood 5 kms Southwest of PIUJ. The area of the factory grounds is 8<sup>sq.</sup>/kilometres. The present buildings, which are due for completion some time in 1949, are a continuation of those whose construction was begun by the Germans in 1942. However, the factory will be only half the size of that planned by the Germans, which was intended to produce 100,000 tons of aluminium products a year.

b) Intended Manpower

Approximately 1,000.

c) Intended Production

Approximately 50,000 tons of aluminium sheets and profiles a year, which is greater than present national requirements. It is intended by the planners that partial production should begin in early 1950. The process for extracting aluminium

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which is to be used in the factory was invented by a German chemist [redacted]

[redacted] although not the most

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efficient process it is well adapted to Yugoslav needs, since it requires little electric power, of which JUGOSLAVIA is still short.

d) Machinery and Installations

Part of the machinery already installed by the Germans was left intact.

The large electric cables, however, were sent to other Yugoslav factories soon after the German withdrawal, and the management is now having difficulty in replacing them. Electric motors, which must be of a capacity exceeding 60 h.p., are being sought abroad, since they cannot be manufactured at home. [redacted]

[redacted] Twenty "silos", each of a capacity

of 150 cubic metres, are under construction, and will be used for mixing bauxite with water.

e) Intended Source of Power.

The power station of MLRIBOR Island, which is being constructed specifically to serve the factory at STRNISCE.

f) Source of Raw Materials

The bauxite mines of BOSNIA.

33. "VERIG" Iron Engineering Works, LESCE.

This factory, which was enlarged in 1948, specialises in the manufacture of iron chains and screws. Its productive capacity is not known. The machinery of the nuts and bolts department of the Iron Engineering Works at TEZNO-MLRIBOR (see paragraph 27(b)) is due for removal to the LESCE Works. This machinery is capable of turning out 300 tons of nuts and bolts a year, though, from shortage of raw materials, only 120 tons a year have been produced by the TEZNO Factory.

34. "PARNIK KOTLOVA" Boiler Factory, ZAGREB / ZITNJAK +

a) Introductory

This factory is scheduled for construction next to the "1st of May" Factory at ZITNJAK. So far work has been started on only one department.

b) Intended Production

The factory is intended to manufacture steam boilers for industry, steam-rollers, and heating. It will not manufacture boilers for locomotives. No

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specific production target has been laid down, but it is estimated that the Factory will be able to supply the entire needs of the country in the above products.

c) Manpower

The maximum number of employees has been fixed at 600.

d) Machinery

The majority of the machinery required consists of pneumatic hammers and apparatus for electrical welding. It is not known from where the machinery is being obtained.

35. "WESTERN" Chemical and Engineering Works, CELJE

a) Production

This factory, which before nationalisation belonged to SIGMEIER and GRUBER, produces the following:-

Zinc sheeting - in which it has a monopoly - sufficient for national requirements.

Copper accessories for railway industry and plating for locomotive boilers - total 3,000 to 4,000 tons annually.

Minium.

White anti-oxdizing colourings.

Iron kitchen utensils - 10,000 annually, sufficient to cover national requirements.

Radiators.

Boilers for heating apparatus.

No expansion of the factory is planned.

b) Manpower

Approximately 3,000 workers are employed, working in three shifts.

c) Machinery

This is of old type, but modernisation is planned.

d) Source of Raw Materials

Chiefly the Mines of BOR.

36. "14th October" Engineering Works, KRUSEVAC +

a) Production

The Works manufacture annually 2,400 dolly trucks and 1,500 tons of cement mixing machinery. They also carry out repairs to this machinery. This represents an increase of some 50% over pre-war production; it is planned to double this figure by the end of 1951. However, serious difficulties are likely to be encountered because of labour shortages.

b) Manpower

Approximately 2,000 workers are employed, working in three shifts. Five

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or six German technicians are engaged by the Works.

c) Machinery

All the machinery is of old type. Though machines used for ordinary repairs are more than sufficient, special repair machinery is in short supply.

37. Engineering Works, TUZLA

These Works, which at present employ only some 20 workers, are engaged on the manufacture of piping for railways and canals and plates for covering drains. Their expansion is planned for 1949. Intended production will then be 6,000 tons of finished products a year.

38. Iron Works, (Locomotive Repairs) MARIBOR (ŽELJEZNIKA RADIONICA) +

a) Location

The Works are located near the railway station of STUDENCI (the Carinthian station).

b) Activities

The Works are engaged on the repair to locomotives damaged during the war, and is the largest concern of the kind in JUGOSLAVIA. They also manufacture spare parts for locomotives, but complete construction of locomotives is not undertaken. Research departments in the Works make technical studies of problems connected with locomotives, such as brakes, heating, etc.

c) Machinery and Installations

The machinery is not new, but is well served by the good quality labour employed. In 1946 a small bay was added to the Works for use as a workshop.

39. "JASENICE" Rolling Stock Factory, SMEDEREVSKA PALANKA +

a) Production

Railway passenger coaches are manufactured at the rate of 18 - 20 a month. This is not sufficient to cover national requirements, and it is intended to increase production with enlargement of the factory buildings and purchase of additional machinery abroad (see below). Coaches are marked "CHH". Coachwork and chassis for motor cars  are manufactured in a small independent workshop. Engines are sent from the factories at RAKOVICA(?) and TEZNO. Production is five vehicles a month.

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b) Manpower

Approximately 3,000 workers are employed. This figure it is intended to raise to 5,000 when the necessary expansion has been completed. A workers housing estate is being built near the Factory.

c) Machinery and Installations

An iron bay, 126 x 90 metres, obtained under reparations from the KRUPPS Works in ESSEN, is being assembled. This will house the additional machinery necessary for increased production which has been ordered [REDACTED] 50X1-HUM

[REDACTED] 300 machines, including shearers, facing machines and milling cutters; have been ordered, and will raise the number of machines to 900. Each one will cost the equivalent of 3 to 5 million dinars. 50X1-HUM

The larger installations include four hydraulic presses delivered from CZECHOSLOVAKIA. There is no foundry.

d) Sources of Part-finished Products

Wheels and axles for the railway coaches are supplied by the engineering works at OSOVICE near ZENICA. [REDACTED] 50X1-HUM

e) Sources of Raw Materials

Small quantities are received from GERMANY and CZECHOSLOVAKIA, which supplies iron sheets. Profiles are supplied by the iron and steel works at JESENICE, ZENICA and STORE. Before the TITO-COMINFORM split a certain amount of raw material was received from the U.S.S.R., but of indifferent quality.

f) Source of Power

The Factory is the only one in JUGOSLAVIA equipped with its own electric power station. The station will generate a power of 3,000 KW when Diesel motors received from GERMANY have been installed.

40. Rolling Stock Factory, KRALJEVOa) Plans for Expansion

The wooden bays of which the Factory consists are due to be demolished in the course of 1949 and replaced with brick buildings of superior capacity during 1950.



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b) Production

Present production is 1 railway goods wagon and 10 dolly trucks daily and some 2,500 tons a year of machinery for the building industry.

In the rebuilt factory production will be limited to railway goods waggon, of which it is planned to produce 10 a day. Dolly trucks will be manufactured instead by the "14th October" Factory at KRUSEVAC, and the Locomotive and Bridging Factory at SLIVONSKI BROD. The machinery used for the construction of the dollies, on the other hand, will be transferred to the Tractor Factory at SREDEZEVU which is now nearing completion.

c) Manpower

The Factory employs between 2,000 and 3,000 workers. The number will not be appreciably, if at all, increased after enlargement, since the new machinery to be installed will require less hands.

d) Machinery

The existing machinery will be modernised and expanded in the new Factory; the necessary machines will be found from the store of some 2,000 machines obtained under reparations from GERMANY which is held in storage sheds at BILJUNICA, near ZEMUN. (These sheds are located about 100 metres from BILJUNICA railway station, on the line ZEMUN - ZAGREB).

e) Sources of Raw Materials

The Iron and Steel Works at JESENICE, ZENICA and STORE. These are, and are likely to continue to be, in short supply.

f) Source of Power

The hydroelectric station near DUBROVNIK and the thermo-electric station at BELGRADE.

g) Personalities

The Technical Manager is Ing. MILUTINOVIC.

41. "JUGO ALAT" Machine Tools Factory, NOVI SAD +

a) Introductory

This factory, whose construction is not yet completed, is located in the Eastern outskirts of NOVI SAD, on the FUTOG road, near the railway to SOMBOR, South of the NOVI SAD airfield and Southwest of the railway, to which it has a branch line. Its construction is being given precedence over that of most other factories because

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of the bottleneck in machine tools. The estimated cost is 604 million dinars.

b) Intended Production

The factory is scheduled to manufacture the following machine tools and precision instruments:-

Drills	370 tons a year
Milling machines	600 tons a year
Gauges	90 tons a year
Various measuring instruments	30 tons a year

This total of 1,090 tons of finished products a year represents three times the national requirements in these products, but the intention is to supply the BALKAN countries, despite tense political relations. The department for drill manufacture is planned to begin production in 1949.

c) Intended Manpower

Approximately 1,300 workers are envisaged for the finished factory. Four highly qualified German technicians have been employed on the plans for the construction and machinery of the factory, but are shortly due to leave on the expiry of their contracts.

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d) Machinery

Approximately 900 machines have been earmarked for the factory.

CZECHOSLOVAKIA has agreed to supply the following direct:-

Shearing and sawing machines from SKODA (some of which arrived recently).  
 32 precision shearing machines from the "Freedom" Factory of PRAGUE.  
 40 "PITLER" system machines from the "Freedom" Factory of PRAGUE, which are manufactured on the "D 40" licence of a factory at MAGDEBURG.  
 3 electric tempering machines from the "FOLLMANN" Factory of PRAGUE.

e) Source of Raw Materials

The JESENICE Iron and Steel Works will supply special steel profiles.

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f) Source of Power

The Thermo-electric station at BELGRADE.

42. "1st of May" Machine Tools Factory, ZAGREB / ZITNJAK +a) Introductory

The nucleus of skilled labour and machinery for the new factory under construction at ZITNJAK, near ZAGREB, will be provided by the already existing "1st of May" Machine Tools Factory at ZAGREB itself, which produces the following machine tools:-

170 German type lathes a year ("DREHBANK")  
60 other lathes a year  
130 heavy drop hammers a year  
250 drilling machines of various types and four qualities a year.

The new factory is intended to begin production in 1951.

b) Intended Production

Planned production for the Factory is 25,000 to 30,000 tons of finished products a year. Unlike the "IVO LOLA RIBARA" Factory at ZELENJAK it will not manufacture pieces of over 6 tons in weight. Production will include shearers, drilling machines, lathes, German-type lathes ("DREHBANK"), gearing for industrial machinery, and spare parts for machine tools. It is also intended that the Factory shall begin serial production of the new type of "Centerlex" machine invented by the German engineer employed by "IVO LOLA RIBARA" (see paragraph 21(e)vi).

c) Intended Manpower

Approximately 2,000 workers are envisaged.

d) Machinery and Installations

The Factory is to be equipped with a large foundry, which is designed to make it independent of other works. No details are known of the intended machinery.

e) Personalities

The political director will be a certain NOVAK, who fulfills that function at the existing "1st of May" Factory at ZAGREB.

43. Tractor and Agricultural Implement Factories, SMEDEREVO +

Two factories in the vicinity of SMEDEREVO are earmarked for the production of tractors and agricultural implements. The first, which is already in an advanced state of construction, will produce tractors and tracks for armoured vehicles, but it is not intended that it should be switched entirely to war production.

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construction of the second, for agricultural implements, has not yet begun. One of its first specific tasks will be the manufacture of extraction machinery for the BORO Mines. It will receive the machinery at present used by the Rolling Stock Factory at KR.LJEVO for the manufacture of dolly trucks, and other machinery is on order from HUNGARY.

#### 44. Agricultural Implements Factory, VISEGRAD

##### a) Introductory

Levelling of the ground for the construction of this Factory was begun in 1947, and partial production is planned before the end of 1949. The buildings are located some 500 metres Southeast of VISEGRAD.

##### b) Intended Production

The Factory is intended to produce 5,000 tons a year of ploughs, sewers and similar agricultural implements.

##### c) Manpower

The factory is intended to employ some 600 workers.

##### d) Machinery

The machinery has already been ordered abroad. Since it is non-specialist machinery, the Factory could not be switched over to war production.

#### 45. Ball Bearings Factory, BELGRADE

A building in Knez Mihailo Ulica, which has no appearance of being a factory, has been earmarked for the production of ball bearings. Machinery is being awaited from abroad.

#### 46. Cable Factory, ZAGREB (KABLOVA FABRIKA)

This Factory undertakes small scale manufacture of electric cables for the railway industry and electric power stations. Raw materials are supplied by the "WESTERN" Factory at CELJE.

#### 47. "HUTTER" Textile Factory, MARIBOR +

##### a) Production

This is the largest textile factory in the country, and is the only one which could undertake large-scale production of clothing for military use in wartime. It was manufacturing military clothing in 1945 and 1946, but it is not known if this

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has continued. Clothing is exported  to one or two of the BALKAN countries. Before the TITO-COMINFORM split exports also went to the U.S.S.R.

b) Manpower

Approximately 3,000 workers are employed.

c) Source of Raw Materials

Not known. They used to be supplied by the U.S.S.R.

48. "BATA" Footwear Factory, BOROVO

a) Production

The Factory manufactures leather and rubber footwear, and tyres for bicycles and all types of motor vehicles. It works chiefly for military account, and if production were switched entirely to this sector it could satisfy total needs. Only some fifth of civilian requirements could be met, even without military commitments, in the present state of the machinery; the factory is in great need of spare parts and up-to-date equipment, which before the TITO-COMINFORM split was provided by the "BATA" Factory in CZECHOSLOVAKIA. With improved machinery the Factory could meet approximately half of the total civilian requirements of the country. It is intended that the necessary additional machinery shall be manufactured by the "KOMBINAT" Engineering Works under construction at SARAJEVO.

b) Manpower

The Factory employs some 3,000 workers.

49. Rubber Goods Factory, KRANJ

a) Production

The factory manufactures medical and surgical rubber goods, inner tubes and raincoats. It does not manufacture synthetic rubber, nor, so far as is known, does any factory in JUGOSLAVIA. Production is restricted through shortage of raw materials.

b) Manpower

The Factory employs some 1,200 workers.

c) Machinery

Machinery is old, but adequate for present needs.

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50. Motor Factory, TEZNO-M. RIBOR +a) Introductory

The factory was begun by the Germans in 1942, and was intended for the production of parts for aero-engines at the rate of 2,700 a month.

b) Production

Partial production was begun in 1946 of Czechoslovak type "PRAGA" lorries, 2½ tons. It was planned that production should shortly reach ten of these lorries a day, with connecting rods and crankshafts to be provided by the "PRAGA" Factory in CZECHOSLOVAKIA, since the TEZNO Factory was not equipped to manufacture them. However, since these pieces were never provided, owing to commercial and later political pressure from the SOVIET UNION, production is now only one lorry a week, or just over 50 a year. A special department is now under construction for the manufacture of the pieces mentioned. Even after this department has begun production, it is likely to encounter serious difficulties because of the shortage of skilled labour, which is felt even in present circumstances. In theory the Factory can employ 5,000 workmen full time, and produce 12 lorries a day.

Engine parts are sent to the Engine Factory at RAKOVICA for oil tempering, which is considered to be more efficient at this process than the TEZNO Factory would be.

It is possible that a certain amount of repairs are undertaken to aero-engines, but no aero-engines are being constructed. Engines are also made for the vehicles manufactured by the "J. SENICE" Rolling Stock Factory at SMEDEREVSKA PALANKA.

c) Manpower

Approximately 2,500 workers are employed, working in two shifts. Because of the high number of workers in comparison with the rate of production the Factory is run at an enormous deficit. A housing estate is being built between this Factory and the Iron Engineering Works at TEZNO for the accommodation of the workers from both factories.

d) Machinery

Apart from the machinery required for the manufacture of connecting rods and crankshafts, the Factory is now fully equipped. All the machinery in use came from German reparations. The machinery left behind by the Germans had been

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taken from [redacted] Czechoslovakian factories, and was reclaimed [redacted]

[redacted] after the war.

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e) Sources of Part finished Products

Gear sets are manufactured by the RAKOVICA Factory, though the TEZNO Factory could manufacture them if necessary. Magnetoos and other electrical equipment for the lorries are purchased abroad.

f) Personalities

Political Director

GOLOP [redacted]

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Technical Manager

Dr. Ing. HERCEGONI [redacted]

APPENDIX A

"IVO LOLA RIBARA" Engineering Works, ZELEZNIK

L E G E N D

1. Kitchens and dining rooms
2. Workers Trade Union Offices
3. Hospital and Guards' quarters
4. Apprentice School
5. Technical Directorate
6. Commercial Offices
7. Vehicle Park and M.T. shops: fire defence station
8. Despatching office
9. Models office
10. Foundry
11. Castings cleaning department
12. Department 13 A - heavy construction
13. Smiths department
14. Electric transformer
15. Department 13 B - medium construction department
16. Materials store
17. Space for eventual enlargement
18. High tension line
19. Workers' estate



APPENDIX B

"LITOSTROJ" Pump and Turbine Factory, LJUBLJANA

L E G E N D

1. Airfield
2. "LITOSTROJ" Factory
3. Workers' estate
4. Probable location of models office to be constructed

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APPENDIX C

"KOMBINAT" Engineering Works, SAMOJEVO

LEGEND

1. Machinery construction department
2. Machinery construction department
3. Metal tempering department - Smiths department - Repairs department
4. Gas generator for furnaces
5. Vehicle park
6. Despatching department
7. Directorate
8. Industrial school
9. Dining rooms
10. Models office
11. Foundry
12. Prototypes construction department
13. Village of LUSICA
14. Workers' estate, under construction
15. Baths

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APPENDIX D

Industries at MRIBOR and MRIBOR-TEZNO

LEGEND

1. Management offices of Motor Factory, TEZNO (TOVARNA AUTOMOBIL)
2. Engine Department
3. Coachwork department
4. Assembly workshops
5. Thermal Power Station
6. Workers' estate
7. Iron Engineering Works, TEZNO ("SPLOSNA")
8. Airfield
9. "HUTER" Textile Factory
10. Barracks
11. Iron Works (Locomotive Repairs): (ZELJEZNIKA RADIONICA)

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APPENDIX F

Iron and Steel Works, STORE

LEGEND

1. Management Offices
2. Casting beds department
3. Despatching department
4. Foundry
5. Major repairs department
6. Covered storage shed
7. Scrap dump
8. Fireproof brick factory

APPENDIX H

"JASENICE" Rolling Stock Factory

SMEDEREVSKA P. LANKA

L E G E N D

1. Electric Power Station (Diesels)
2. Industrial Schools
3. Workers' Recreation Centre
4. Old Mechanical Workshops
5. Management Offices
6. Coach Assembly Workshops
7. Vehicle Park and Repair Shops - Fire Station
8. Foundry
9. New Coachbuilding Department
10. Small Workshops for Repairs to Aero-engines (independent)

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APPENDIX I

"JUGO ALAT" Machine Tool Factory, NOVI SAD

LEGEND

1. Fire Station
2. Power Station for Heating
3. Store and Smith-Mechanics Department
4. Construction Workshops
5. Management Offices
6. Railway Engine Park
7. Airfield
8. Old Fort.

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APPENDIX J

"1st of May" Machine Tool Factory, ZAGREB/ZITBIJK  
and "PARNIK KOTLOVA" Boiler Factory, ZAGREB/ZITBIJK

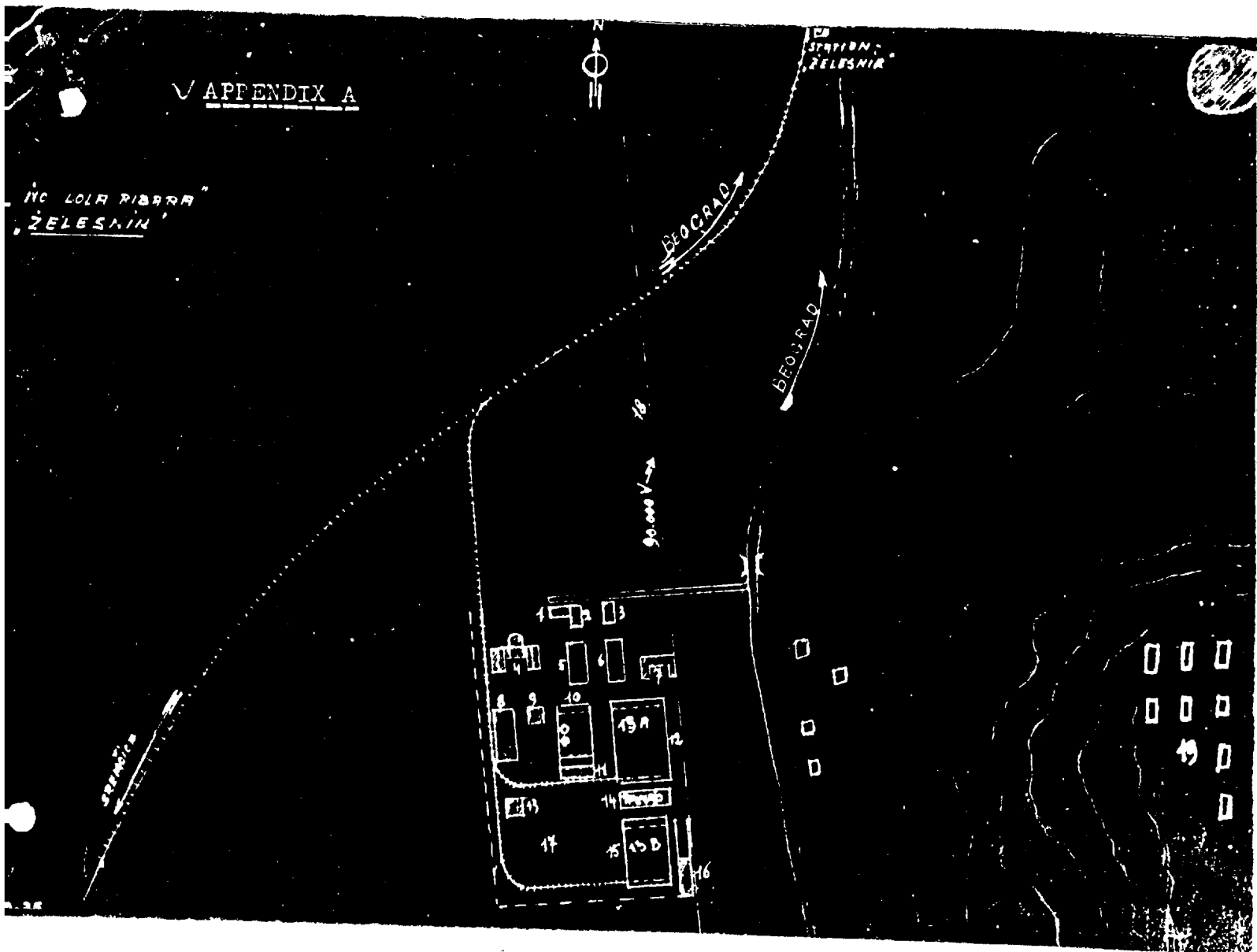
L E G E N D

- A. Boiler Factory
  - 1. Assembly Workshops
  - 2. Construction Workshops
  - 3. Management Offices
  
- B. "1st of May" Factory
  - 1. Construction Workshops
  - 2. Foundry
  - 3. Management Offices

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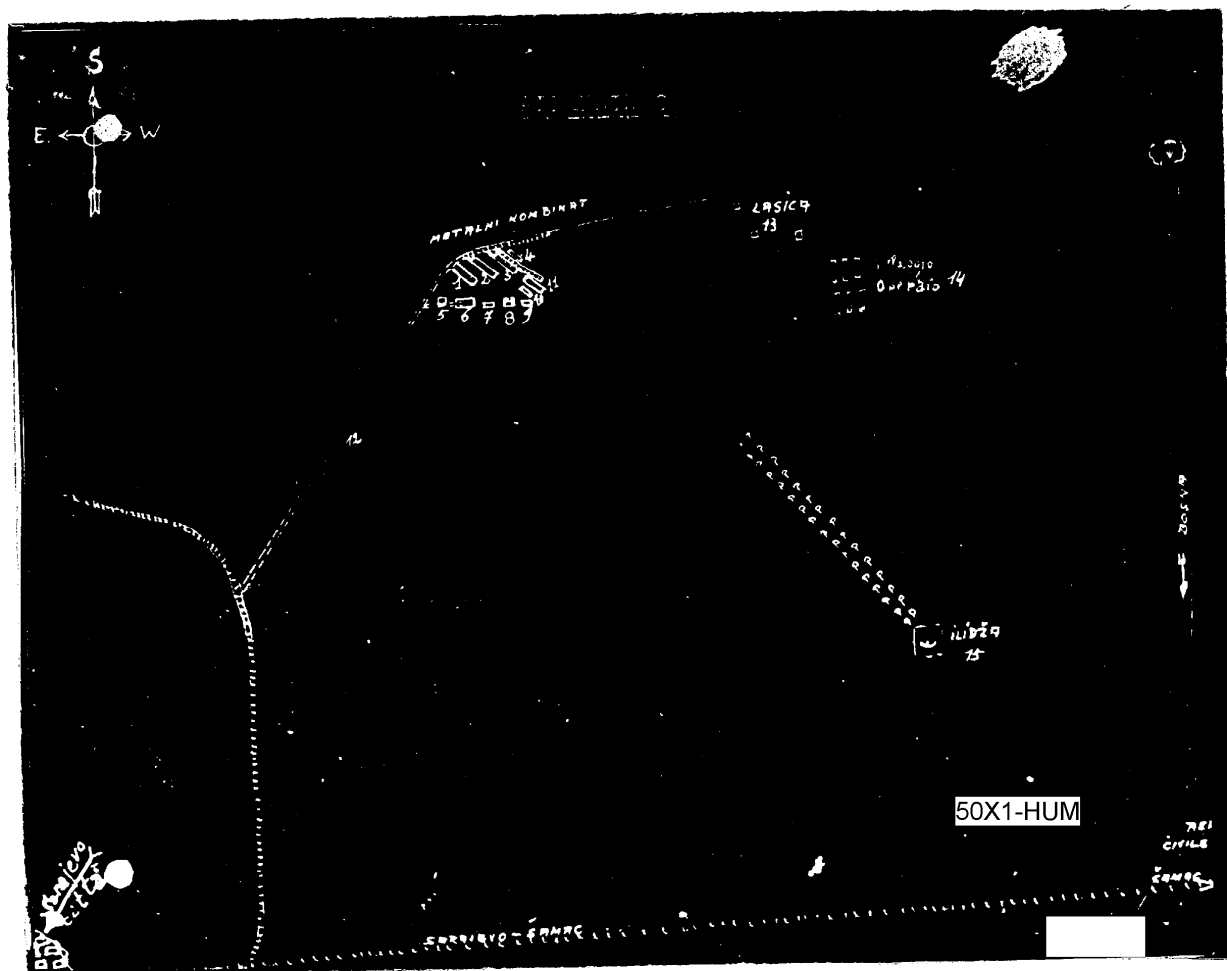
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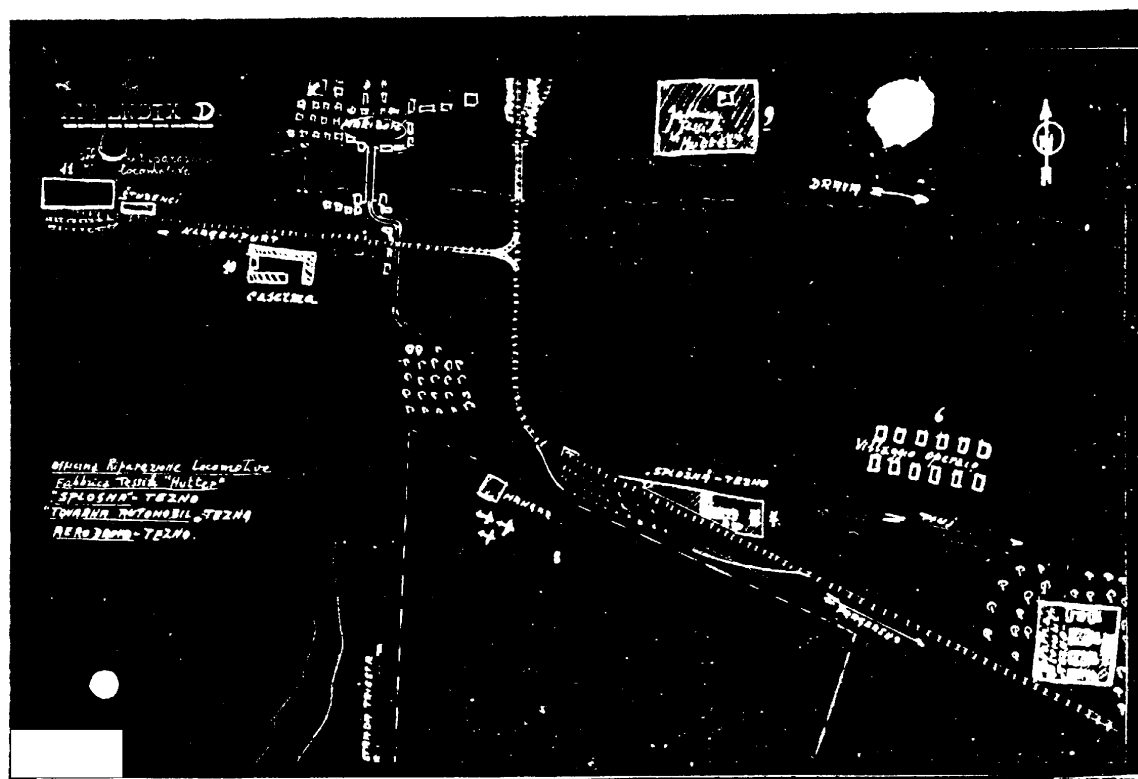
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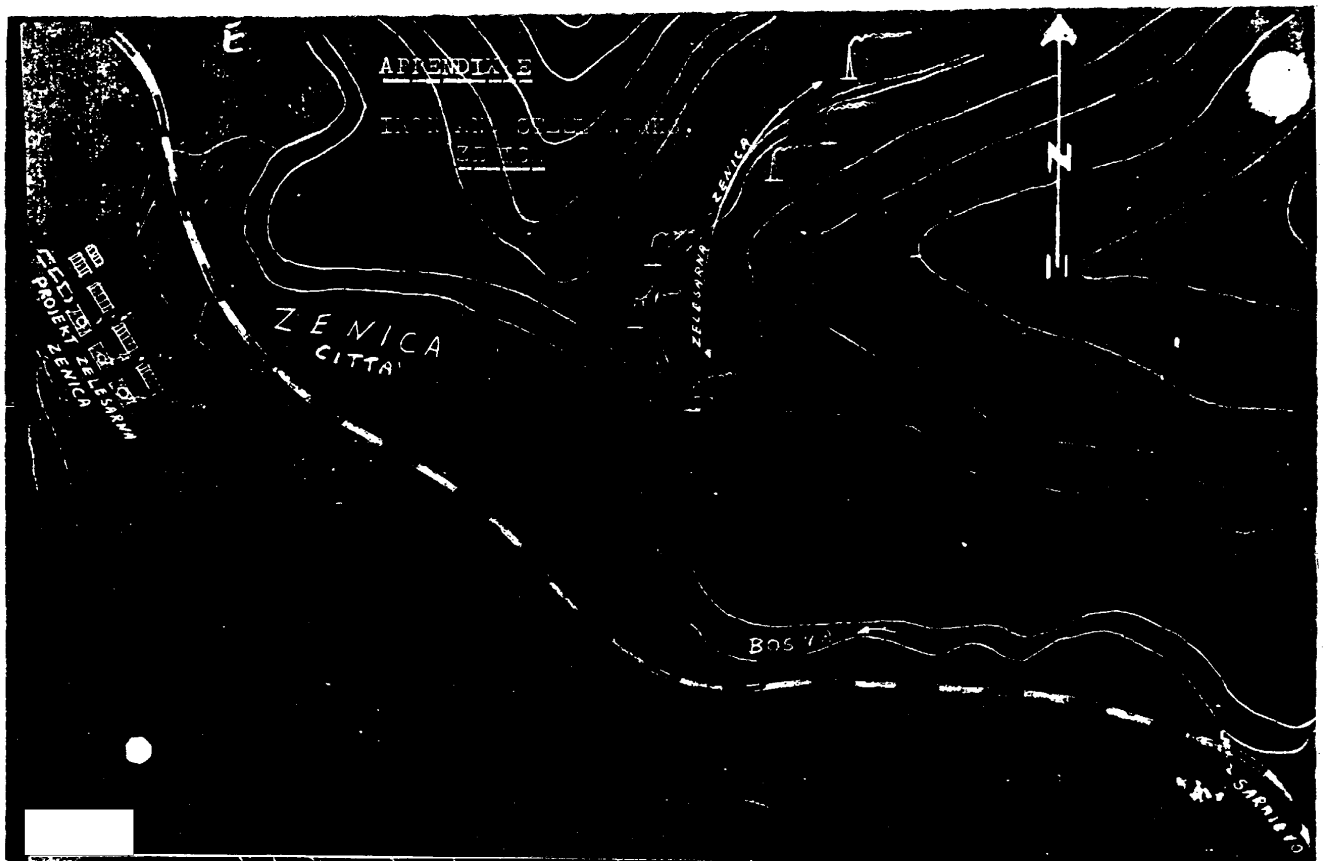
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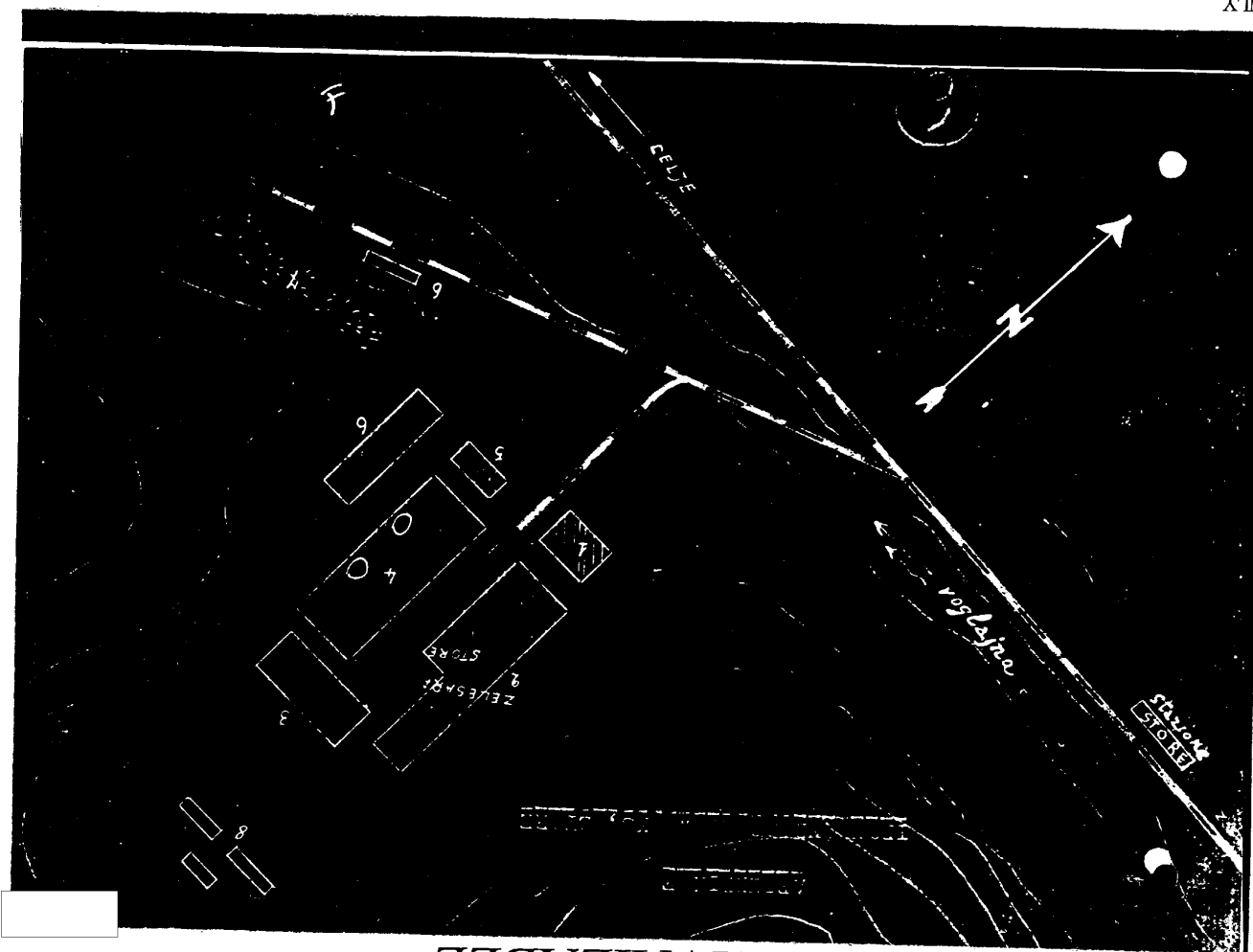
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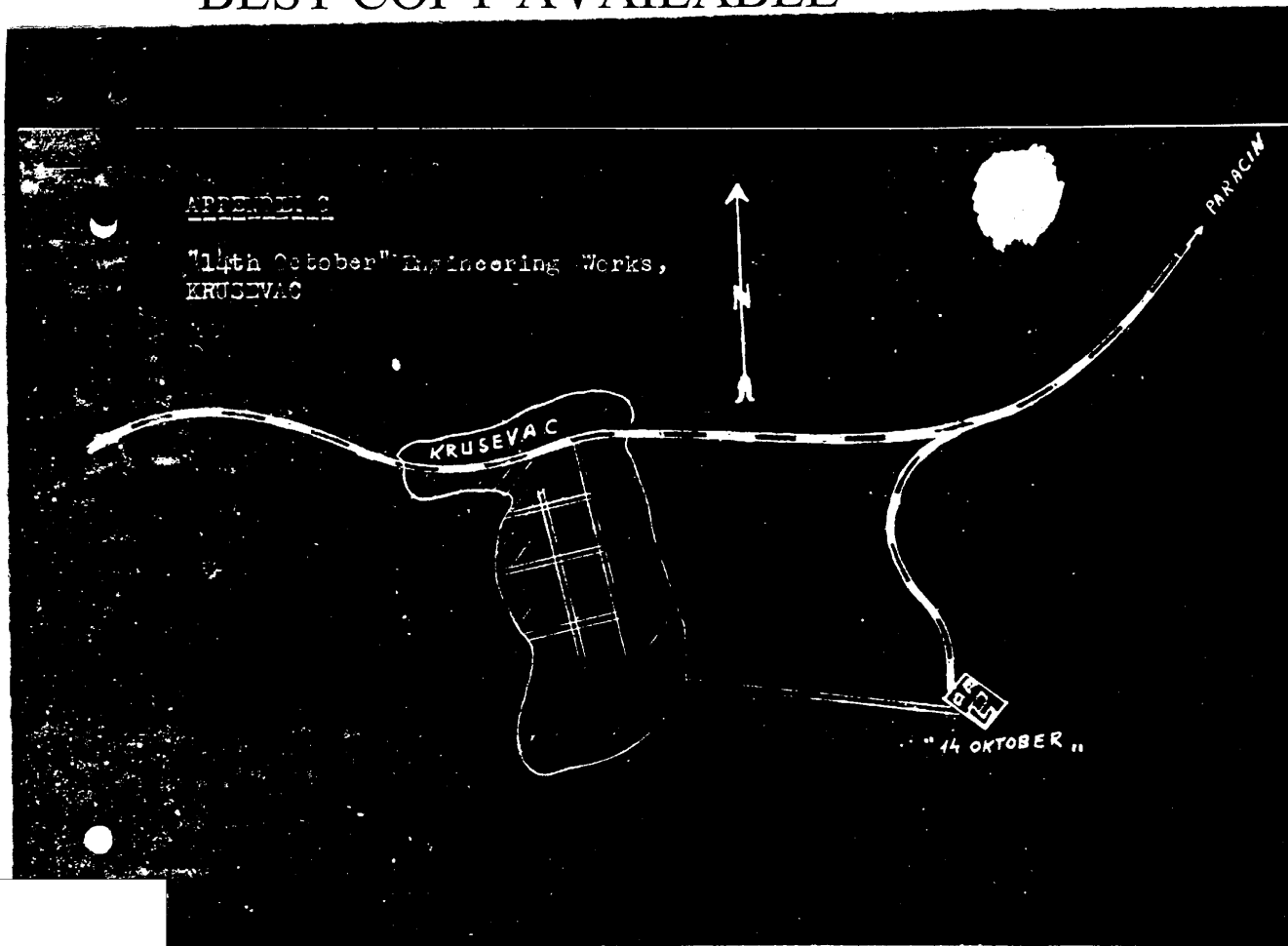


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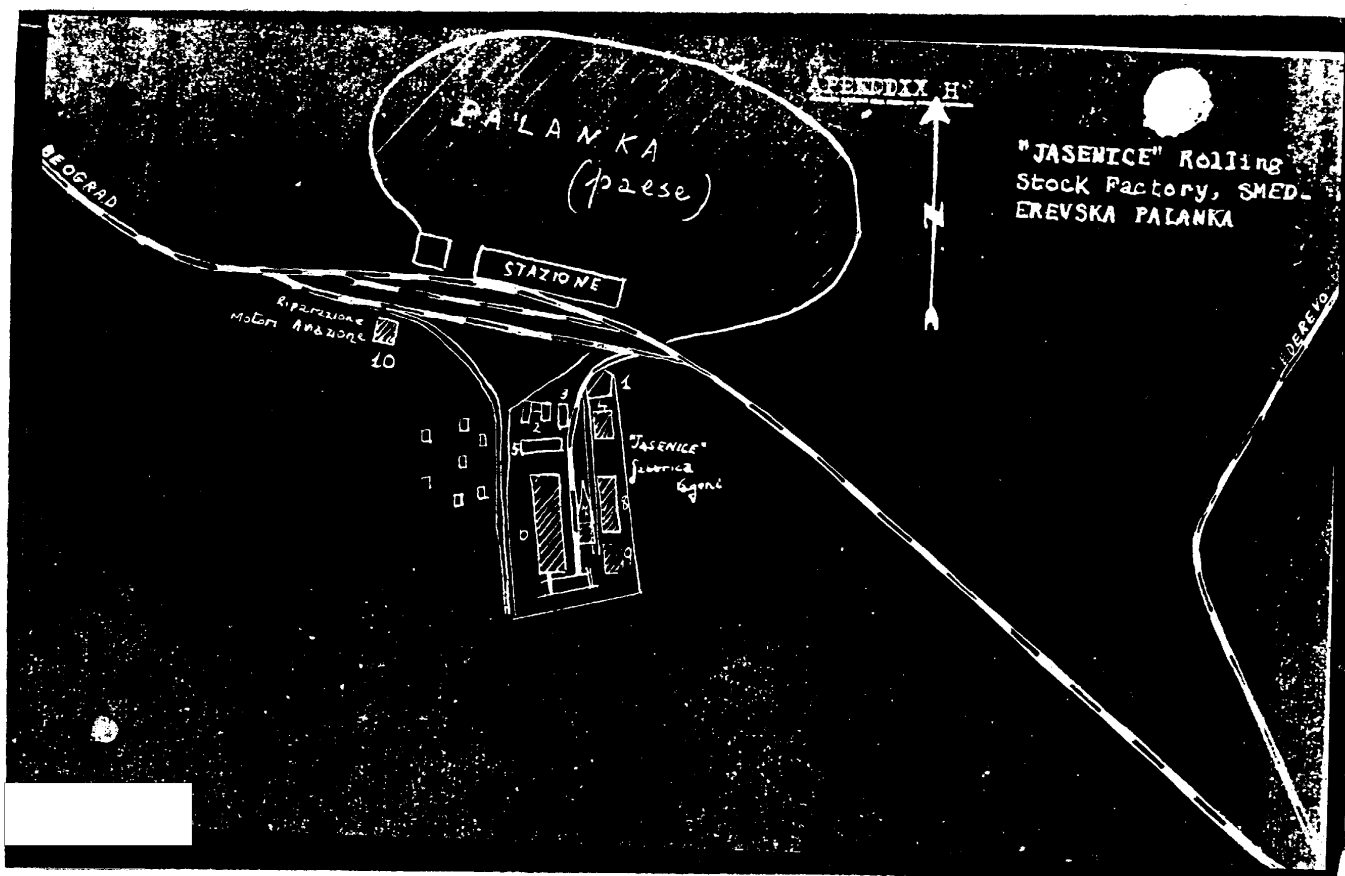
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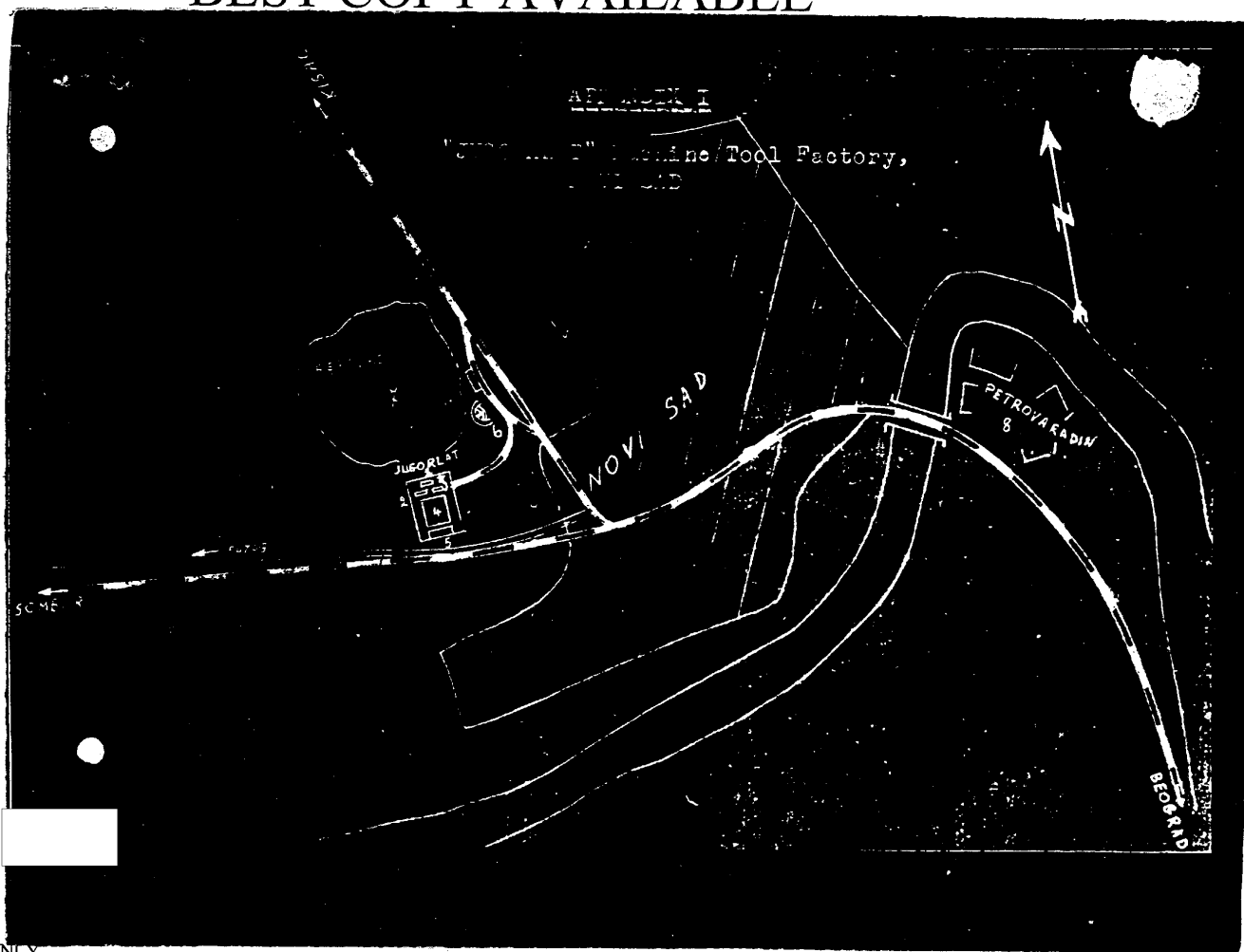
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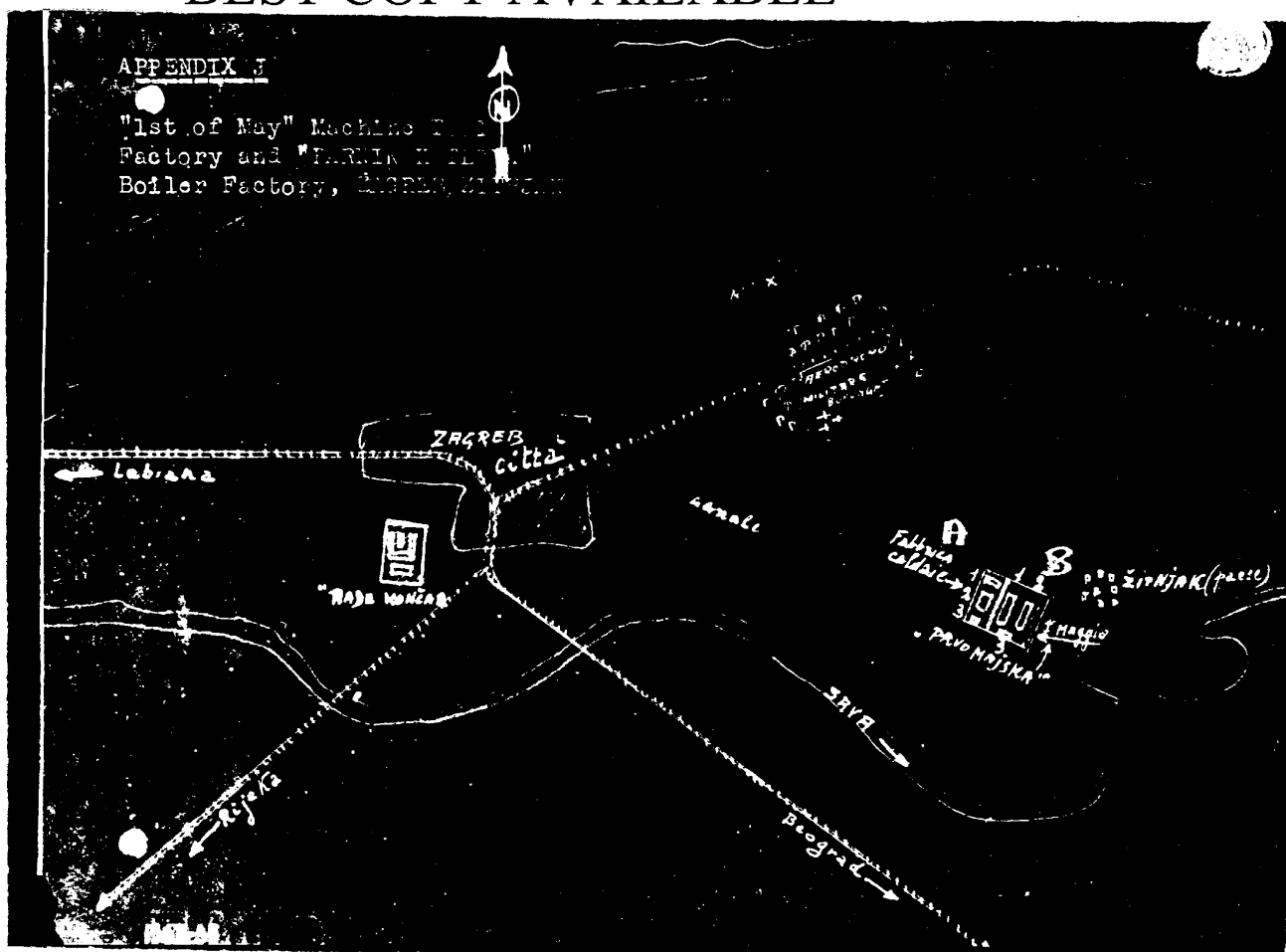


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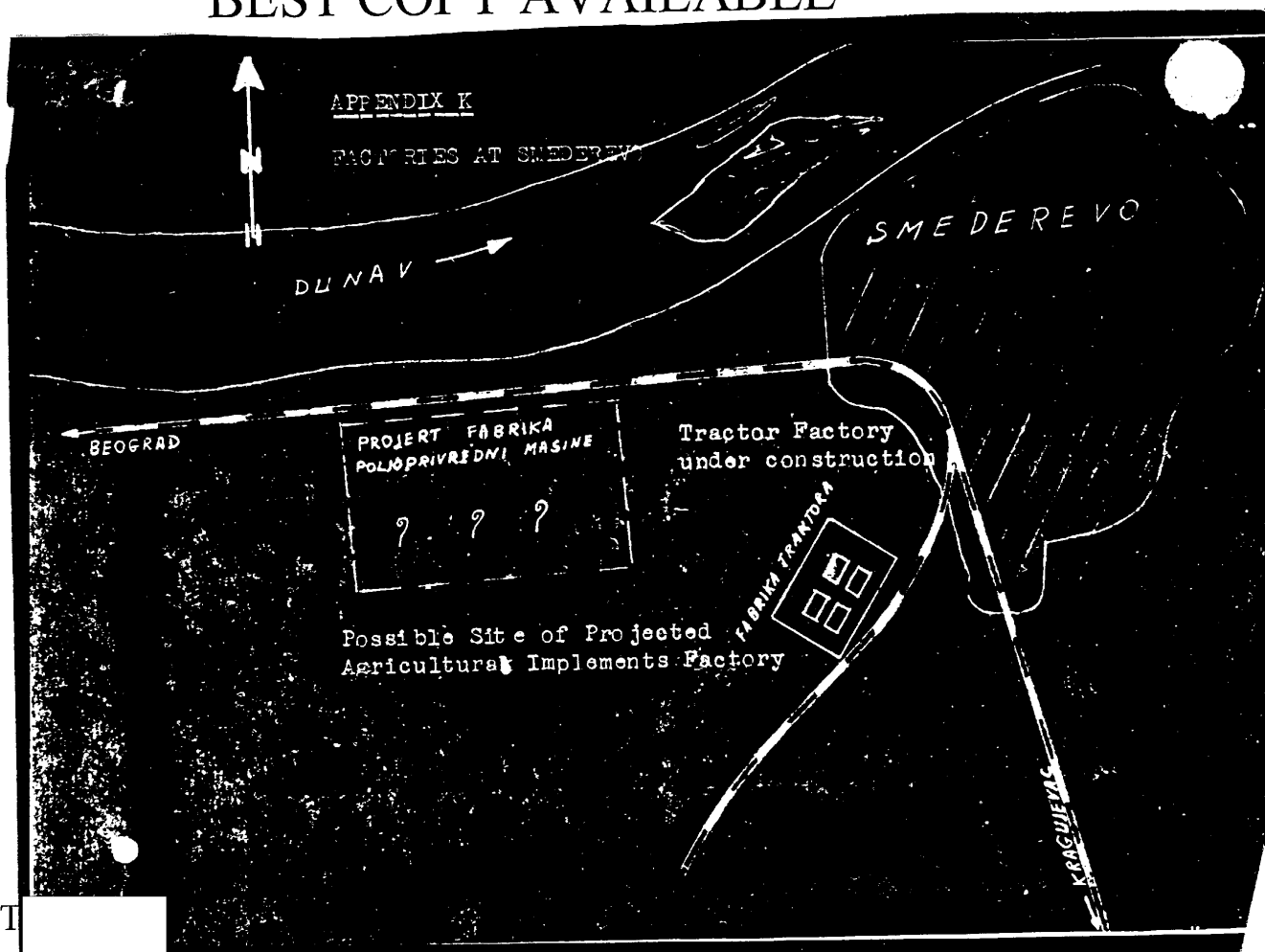


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